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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/069,093	02/01/2002	Georg Steinbichler	H55-054 US	7526
21706	7590	10/31/2005	EXAMINER	
NOTARO AND MICHALOS 100 DUTCH HILL ROAD SUITE 110 ORANGEBURG, NY 10962-2100			HEITBRINK, JILL LYNNE	
			ART UNIT	PAPER NUMBER
			1732	

DATE MAILED: 10/31/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/069,093

Applicant(s)

STEINBICHLER ET AL.

Examiner

Jill L. Heitbrink

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**– The MAILING DATE of this communication appears on the cover sheet with the correspondence address –**  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 27 September 2005.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 7-23 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 7-23 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on September 27, 2005 has been entered.

***Claim Rejections - 35 USC § 112***

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 7-23 are rejected under 35 U.S.C. 112, first paragraph, because the best mode contemplated by the inventor has not been disclosed. Evidence of concealment of the best mode is based upon the declaration filed by applicant on September 28, 2005. Applicant's declaration states that the invention must include the contact pressure of the nozzle and the mold to be built up before the opening of the shut-off means. This is not disclosed in the original application. The original specification and

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drawings do not provide any mode for contact or bringing into contact of the nozzle and the mold, and thus applicant's disclosure effectively results in concealment.

4. Claims 7-23 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The amendment to claim 7 as to "a front opening of the antechamber is brought into contact with the mold in a way necessary for injection" does not have direct support in the original specification. Claims 12, 17, 22 and 23, lines 3 and 4 similar do not have support in the original specification. Applicant may be relying on the examiner's previous explanation of the rejection of the "frame". However, as stated in the remarks in the last office action, the examiner does not find any support for the control means operating independently from the movement of the antechamber. The cylinder 8 is disclosed, but any type of support for the cylinder has not been described. A person of ordinary skill in the art would have realized that the movement of the shut-off means would have been related to the movement of the mold opening/closing and any movement of the injection cylinder and screw. Additionally, the specification on page 2, lines 19-21 state "The method according to the invention can be carried into effect on any conventional injection-molding apparatus insofar as the feed flow to the mould cavity is controllable by a shut-off means." As shown by Tucker, Rosato and many of the other cited prior art in this application, the injection cylinder and

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nozzle are known to be moved away from the mold such as to allow faster cooling of the article in the cavity or removal of the article in the cavity, and the injection cylinder and nozzle may remain in position against the mold between injection cycles such as when temperature difference are adequately controlled. The present specification does not provide any information as to how the cylinder 8 is supported or as to the antechamber being brought into contact with the mold. Therefor, the specification does not provide support for the movement of the antechamber into contact with the mold.

5. Additionally, claim 7, lines 13 and 14 “operated after a delay after the front opening of the antechamber has been completely brought into contact with the mold” does not have support in the original specification. Applicant states that this has support on page 4, last paragraph. However, the delay is “between the reaching of maximum pressure inside of the antechamber 1 and the opening of the shut-off means 2”. The disclosed delay does not have any disclosed relationship with the any bringing of the antechamber into contact with the mold. Similarly, claim 12, lines 10-12, claim 22, lines 10 and 11, and claim 23, lines 10 and 11 do not have support in the original specification.

6. Claims 12-16 and 23 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. New claims 12 and 23, line 10 and 11 “at any time after” does not have support in the original specification, which is in additionally to

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the lack of support for the contact with the mold. The examiner notes that if applicant is relying on the same support for claims 7, 12, 22 and 23 than these claims would be considered duplicates since "after a delay after" and "at any time after" would be claiming the same limitations.

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. Claims 7-16 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

9. Claim 7, line 13 and claim 12, line 10 provides "a capability to be operated ...". However, the claim is a method claim and should clearly set forth the method steps. The claimed method having the capability, does not set forth any steps involved in the method/process, it is unclear what method/process applicant is intending to claim. If applicant is claiming a method with a delay, then it should be clearly claimed in the method.

10. Claim 12, line 11 "a front" should be "the front", see line 3.

***Claim Rejections - 35 USC § 103***

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

12. Claims 7, 10, 12, 15, 17, 20, 22 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Trueblood Pat. No. 3,436,793 taken together with Bernhardt Pat. No. 2,952,041.

13. Trueblood discloses the injection molding method in which an antechamber 15 is brought into contact with the mold by the cylinders 18 and the control means for opening the shut-off means 50 is operated after a delay after the front opening of the antechamber has been completely brought into contact with the mold (col. 4, lines 11-23). The injection into the cavity by opening the shut-off means in a controlled manner would inherently modify a pressure pattern in the mold cavity (col. 4, lines 51-69) since feeding the plastic material into the cavity changes the pressure in the cavity to modify a pressure pattern in the mold cavity. The filling of the mold cavity causes the pressure to change in the cavity and thus "modify a pressure pattern in the mold cavity". Trueblood discloses "a pressure buildup of the plasticized material within the chambers 24 and 42 which, in turn produces a faster injection of the material into the mold cavity when the valve member 50 is opened. This quick injection assures that the mold cavity will be completely filled with plasticized material before the material begins to solidify." (col. 4, lines 63-69). Bernhardt was cited in the International Search Report from which the

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present application claims priority, and original claims 1 and 4 were considered not to involve an inventive step when the document is taken alone. Original claim 1 contained the limitation "fills the mould cavity under pressure, characterized in that the volume of the antechamber (1) and the pressure prevailing therein, at the opening of the shut-off means (2), are of values, at the existence of which at least half of the pressure achieved in the mould cavity (3) in the method occurs even if the volume of the antechamber (1) is kept constant during the injection operation." The volume of the antechamber and the pressure prevailing therein being at values such that at least half of the pressure achieved in the mold cavity occurs even if the volume of the antechamber is kept constant during the injection operation would have been obvious in Trueblood in view of the teaching of Bernhardt since Trueblood desires a quick injection by the pre-compression of the material before opening of the valve. Additionally, Bernhardt teaches the injection screw not moving during injection (col. 1, lines 49-50) and the pressure being generated by the extruder (claim 1). The volume of the antechamber being kept constant during the injection operation so that the total pressure in the mold cavity is produced by expansion of the plastic material which initially fills only the antechamber would have been obvious in Trueblood since the pressure in the antechamber provides the quick filling of the cavity before the material can begin to solidify.

14. Claims 7, 9, 12, 14, 17, 19, 22 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Trueblood Pat. No. 3,436,793 taken together with DE 467753.



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15. Trueblood discloses the injection molding method in which an antechamber 15 is brought into contact with the mold by the cylinders 18 and the control means for opening the shut-off means 50 is operated after a delay after the front opening of the antechamber has been completely brought into contact with the mold (col. 4, lines 11-23). The injection into the cavity by opening the shut-off means in a controlled manner would inherently modify a pressure pattern in the mold cavity (col. 4, lines 51-69) since feeding the plastic material into the cavity changes the pressure in the cavity to modify a pressure pattern in the mold cavity. The filling of the mold cavity causes the pressure to change in the cavity and thus "modify a pressure pattern in the mold cavity". Trueblood discloses "a pressure buildup of the plasticized material within the chambers 24 and 42 which, in turn produces a faster injection of the material into the mold cavity when the valve member 50 is opened. This quick injection assures that the mold cavity will be completely filled with plasticized material before the material begins to solidify." (col. 4, lines 63-69). DE 467753 was cited in the International Search Report from which the present application claims priority, and original claims 1 and 3 were considered not to involve an inventive step when the document is taken alone. Original claim 1 contained the limitation "fills the mould cavity under pressure, characterized in that the volume of the antechamber (1) and the pressure prevailing therein, at the opening of the shut-off means (2), are of values, at the existence of which at least half of the pressure achieved in the mould cavity (3) in the method occurs even if the volume of the antechamber(1) is kept constant during the injection operation." The volume of the antechamber and the pressure prevailing therein being at values such that at least half of the pressure

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achieved in the mold cavity occurs even if the volume of the antechamber is kept constant during the injection operation would have been obvious in Trueblood in view of the teaching of the secondary references since Trueblood desires a quick injection by the pre-compression of the material before opening of the valve. The volume of the antechamber at the opening of the shut-off means being at least twice as great as the volume which is downstream of the shut-off means and which includes the mold cavity would have been obvious in Trueblood in view of DE 467753 since Trueblood requires quick filling of the thin mold cavity so that the material does not solidify before complete filling.

16. Claims 7, 12, 17, 22 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Trueblood Pat. No. 3,436,793 taken together with anyone of CH 331628, AU 474563, DE 1954287, GB 646781, GB 620652 or FR 1197872.

17. Trueblood discloses the injection molding method in which an antechamber 15 is brought into contact with the mold by the cylinders 18 and the control means for opening the shut-off means 50 is operated after a delay after the front opening of the antechamber has been completely brought into contact with the mold (col. 4, lines 11-23). The injection into the cavity by opening the shut-off means in a controlled manner would inherently modify a pressure pattern in the mold cavity (col. 4, lines 51-69) since feeding the plastic material into the cavity changes the pressure in the cavity to modify a pressure pattern in the mold cavity. The filling of the mold cavity causes the pressure to change in the cavity and thus "modify a pressure pattern in the mold cavity". Trueblood discloses "a pressure buildup of the plasticized material within the chambers 24 and 42

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which, in turn produces a faster injection of the material into the mold cavity when the valve member 50 is opened. This quick injection assures that the mold cavity will be completely filled with plasticized material before the material begins to solidify." (col. 4, lines 63-69). Each of the secondary references were cited in the International Search Report from which the present application claims priority, and original claim 1 was considered not to involve an inventive step when the document is taken alone. Original claim 1 contained the limitation "fills the mould cavity under pressure, characterized in that the volume of the antechamber (1) and the pressure prevailing therein, at the opening of the shut-off means (2), are of values, at the existence of which at least half of the pressure achieved in the mould cavity (3) in the method occurs even if the volume of the antechamber(1) is kept constant during the injection operation." The volume of the antechamber and the pressure prevailing therein being at values such that at least half of the pressure achieved in the mold cavity occurs even if the volume of the antechamber is kept constant during the injection operation would have been obvious in Trueblood in view of the teaching of the secondary references since Trueblood desires a quick injection by the pre-compression of the material before opening of the valve.

18. Claims 8, 11, 13, 16, 18 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Trueblood Pat. No. 3,436,793 taken together with anyone of Bernhardt Pat. No. 2,952,041, DE 467753, CH 331628, AU 474563, DE 1954287, GB 646781, GB 620652 or FR 1197872 as applied to the claims above, and further in view of Xu Pat. No. 6,322,347.

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19. Xu teaches a process of injection molding foam material wherein the material accumulates in the space 81 closed by valve 64 with a pressure of over 1000 bars (col. 11, lines 58-65 pressure of about 1500 to about 30,000 psi). The pressure produced in Trueblood for the quick injection to fill the mold being over 1000 bars would have been obvious to a person of ordinary skill in the art since these high pressure are known in the art of injection molding so as to maintain a single phase material prior to injection into the mold cavity.

20. Claims 7, 9, 10, 12, 14, 15, 17, 19, 20, 22 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bronnenkant et al. Pat. No. 3,052,925 taken together with Trueblood Pat. No. 3,436,793 in view of either Tucker Pat. No. 2,318,031 or Rosato (Injection Molding Handbook).

21. Bronnenkant et al discloses an injection molding method including pressuring a volume of plastic material in an antechamber with a shut-off means and opening the shut-off means so that at least half of the pressure achieved in the mold cavity occurs even if the volume of the antechamber is kept constant during the injection, see col. 1, lines 10-24 and col. 4, lines 18-45. The shut-off means (nozzle valve 63) being opened by a control means for directly modifying a pressure pattern in the mold cavity would have been obvious in Bronnenkant since the opening of the valve to allow the plastic material to "explode" into the mold cavity (col. 4, lines 62-68) would cuase changes in the pressure in the cavity modifying a pressure pattern in the mold cavity. Clearly, the opening of the valve would be controlled to occur after the building of pressure in the

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accumulator. The filling of the mold cavity causes the pressure to change in the cavity and thus "modify a pressure pattern in the mold cavity".

22. It is unclear in the specification and claims as to what type of modification in the pressure pattern is occurring from the controlled manner of opening the valve.

Additionally, it is unclear as to what manner the control is and how the opening of the shut-off means effects the pressure pattern in the mold cavity. The following is a different interpretation of these terms which are obviously met by Bronnenkant et al.

23. The pressure in the antechamber is controlled to "a predetermined pressure" in Bronnenkant (col. 4, lines 26-36). The shut-off means being opened in a controlled manner in order to modify a pressure pattern in the mold cavity would have been obvious in Bronnenkant since a change in the predetermined pressure in the chamber will inherently change the pressure pattern in the mold cavity and the nozzle valve will be opened in a controlled manner after the predetermined pressure has been reached in the chamber. Bronnenkant discloses that "the pressure created by the hydraulic cylinder upon the fluid thermoplastic ... is momentarily held before the plastic fluid is released from the nozzle" (col. 2, lines 60-65) and "valve means at the injection nozzle for temporarily preventing the flow of plastic material therefrom, thereby maintaining the activating force to hold the material under compression until release, together with rapid opening means for the nozzle valve to allow the plastic material to "explode" into the mold cavity" (col. 4, lines 62-68". It would have been obvious to a person of ordinary skill in the art to open the shut-off means after a delay after maximum pressure build up is reached inside the antechamber since the momentarily holding of the pressure in

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Bronnenkant would have been the maximum pressure since this is the pressure for the exploding of the material into the cavity.

24. Trueblood teaches the injection molding method in which an antechamber 15 is brought into contact with the mold by the cylinders 18 and the control means for opening the shut-off means 50 is operated after a delay after the front opening of the antechamber has been completely brought into contact with the mold (col. 4, lines 11-23). The injection into the cavity by opening the shut-off means in a controlled manner would inherently modify a pressure pattern in the mold cavity (col. 4, lines 51-69) since feeding the plastic material into the cavity changes the pressure in the cavity to modify a pressure pattern in the mold cavity. The filling of the mold cavity causes the pressure to change in the cavity and thus "modify a pressure pattern in the mold cavity". Trueblood discloses "a pressure buildup of the plasticized material within the chambers 24 and 42 which, in turn produces a faster injection of the material into the mold cavity when the valve member 50 is opened. This quick injection assures that the mold cavity will be completely filled with plasticized material before the material begins to solidify." (col. 4, lines 63-69).

25. Tucker teaches the alternative use of a valve 24 which is moved by controlled hydraulic actuated motor 28 (page 5, right column, lines 8-12) and the use of valve member 129 which is opened by the motion of the mold (page 7, right column 64 – left column 13). It would have been obvious to a person of ordinary skill in the art to use a control means that is operated after the front opening of the antechamber has been completely brought into contact with the mold in Bronnenkant since these valves are

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known to be alternative in the art of injection molding and a delay in opening of the shut-off means after the antechamber is brought into complete contact with the mold would have provided a safety control to the injection of the material into the mold.

26. Rosato teaches the alternative use of the valves in Fig. 3-21. It would have been obvious to a person of ordinary skill in the art to use a control means that is operated after the front opening of the antechamber has been completely brought into contact with the mold in Bronnenkant since these valves are known to be alternative in the art of injection molding and a delay in opening of the shut-off means after the antechamber is brought into complete contact with the mold would have provided a safety control to the injection of the material into the mold.

27. Claims 8, 11, 13, 16, 18 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bronnenkant et al. Pat. No. 3,052,925 taken together with Trueblood Pat. No. 3,436,793 in view of either Tucker Pat. No. 2,318,031 or Rosato (Injection Molding Handbook), and further in view of Xu Pat. No. 6,322,347.

28. Xu teaches a process of injection molding foam material wherein the material accumulates in the space 81 closed by valve 64 with a pressure of over 1000 bars (col. 11, lines 58-65 pressure of about 1500 to about 30,000 psi). The pressure produced in Bronnenkant for the expansive pressure to fill the mold being over 1000 bars would have been obvious to a person of ordinary skill in the art since these high pressure are known in the art of injection molding so as to maintain a single phase material prior to exploding into the mold cavity.

***Response to Arguments***

29. Applicant's arguments filed September 27, 2005 have been fully considered but they are not persuasive.

30. Applicant's comments to the 112 rejections and sixth paragraph means plus function have been considered. Applicant does provide structure for the control means being the controllable hydraulic unit 12, and thus any equivalent structure. However, the process claimed (or function performed by the means) does not have support as described in the 112 rejections above.

31. Applicant argues the page 4 last paragraph of the specification implicitly suggests the antechamber being brought into contact with the mold. The examiner disagrees and cannot find any support for this movement of the antechamber.

32. The declaration under 37 CFR 1.132 filed September 28, 2005 is insufficient to overcome the rejection of claims 7-23 based upon Bronnenkant and other applied references under 103 as set forth in the last Office action because: Bronnenkant does not open the valve 63 upon initial contact with the mold, see Fig. 3. The valve opens upon further movement as shown in Fig. 4 and described in col. 3, lines 30-63. Therefore, leakage does not occur in Bronnenkant as clearly stated in Bronnenkant at col. 4, lines 50-56.




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33. Applicant argues that Bronnenkant fails to teach a control means that can be operated without moving the antechamber. Tucker and Rosato each teach the obvious alternative use of sliding shut-off valve and a mechanical shut-off valve.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jill L. Heitbrink whose telephone number is (571) 272-1199. The examiner can normally be reached on Monday-Friday 9 am -2 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Colaiani can be reached on (571) 272-1196. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Jill L. Heitbrink  
Primary Examiner  
Art Unit 1732

jlh